VPDES PERMIT PROGRAM FACT SHEET

This document gives pertinent information concerning the VPDES Permit listed below. This permit is being processed as a **MAJOR, MUNICIPAL** permit.

1. **PERMIT NO.**: VA0081299 **EXPIRATION DATE**: 11/29/17

2. **FACILITY NAME AND LOCAL MAILING ADDRESS**

Hampton Roads Sanitation District
Nansemond STP
1436 Air Rail Ave
Virginia Beach, VA 23455

FACILITY LOCATION ADDRESS (IF DIFFERENT)

6909 Armstead Road
Suffolk, VA 23435

CONTACT AT FACILITY:
NAME: Jamie Heisig-Mitchell
TITLE: Chief of Technical Services
PHONE: (757) 460-4220

CONTACT AT LOCATION ADDRESS
NAME: N/A
TITLE:
PHONE:

3. **OWNER CONTACT**: (TO RECEIVE PERMIT)
NAME: Mr. Edward G. Henifin
TITLE: General Manager
COMPANY NAME: HRSD
ADDRESS: 1436 Air Rail Ave
Virginia Beach, VA 23455

PHONE: (757) 460-2261

CONSULTANT CONTACT:
NAME: N/A
FIRM NAME:
ADDRESS:

PHONE: ( )

4. **PERMIT DRAFTED BY**: DEQ, Water Permits, Regional Office

Permit Writers: Deanna Austin DDA Date(s): 4/30-5/5/14
Reviewed By: Mark Sauer (a) Date(s): 5/6/14

5. **PERMIT ACTION:**

( ) Issuance ( ) Reissuance ( ) Revoke & Reissue (X) Owner Modification
( ) Board Modification ( ) Change of Ownership/Name [Effective Date:]

6. **SUMMARY OF SPECIFIC ATTACHMENTS LABELED AS:**

Attachment____	Site Inspection Report/Memorandum
Attachment 1	Discharge Location/Topographic Map
Attachment____	Schematic/Plans & Specs/Site Map/Water Balance
Attachment____	TABLE I - Discharge/Outfall Description
Attachment 2	TABLE II - Effluent Monitoring/Limitations
Attachment 3	Effluent Limitations/Monitoring Rationale/Suitable Data/Antidegradation/Antibacksliding
Attachment 4	Special Conditions Rationale
Attachment____	Toxics Monitoring/Toxics Reduction/WET Limit Rationale
Attachment____	Material Stored
Attachment____	Receiving Waters Info./Tier Determination/STORET Data/Stream Modeling
Attachment____	303(d) Listed Segments
Attachment 5	TABLE III(a) and TABLE III(b) - Change Sheets
Attachment____	NPDES Industrial Permit Rating Worksheet and EPA Permit Checklist
Attachment 6	Chronology Sheet
Attachment____	Public Participation

APPLICATION COMPLETE: 4/17/14

7. **PERMIT CHARACTERIZATION:** (Check as many as appropriate)

(X) Existing Discharge
( ) Proposed Discharge
(X) Municipal
SIC Code #4952
( ) Industrial
SIC Code(s)
(X) POTW
( ) PVOTW
( ) Private
( ) Federal
( ) State
( ) Publicly-Owned Industrial

(X) Effluent Limited
(X) Water Quality Limited
( ) WET Limit
( ) Interim Limits in Permit
( ) Interim Limits in Other Document
( ) Compliance Schedule Required
( ) Site Specific WQ Criteria
( ) Variance to WQ Standards
( ) Water Effects Ratio
(X) Discharge to 303(d) Listed Segment
(X) Toxics Management Program Required
( ) Toxics Reduction Evaluation
( ) Storm Water Management Plan
(X) Pretreatment Program Required
( ) Possible Interstate Effect
(X) CBP Significant Dischargers List

8. **RECEIVING WATERS CLASSIFICATION:** River basin information.

Outfall No: 001

Receiving Stream: Hampton Roads Harbor
River Mile: 2-JMS006.98
Basin: James River (Lower)
Subbasin: N/A
Section: 1
Class: II
Special Standard(s): a, z
Tidal: YES
7-Day/10-Year Low Flow: N/A
1-Day/10-Year Low Flow: N/A
30-Day/5-Year Low Flow: N/A
Harmonic Mean Flow: N/A

Outfall No(s): 002-007

Receiving Stream: Streeter Creek to Hampton Roads Harbor
River Mile: 2-JMS006.98
Basin: James River (Lower)
Subbasin: N/A
Section: 1
Class: II
Special Standard(s): a, z
Tidal: YES
7-Day/10-Year Low Flow: N/A
1-Day/10-Year Low Flow: N/A
30-Day/5-Year Low Flow: N/A
Harmonic Mean Flow: N/A

9. **FACILITY DESCRIPTION:** Describe the type facility from which the discharges originate.

Existing municipal discharge resulting from the discharge of treated domestic sewage.

The MODIFICATION consists of adding a permit special condition to allow for a chlorine residual reduction study. The facility currently operates with a residual limit of 1.5 mg/l. The modification allows for 0.25 mg/l reductions to a final level of 0.5 mg/l as long as all permit limits, including bacteria limits are met and maintained.

10. **LICENSED OPERATOR REQUIREMENTS**: ( ) No (X) Yes Class: I

11. **RELIABILITY CLASS**: I

12. **SITE INSPECTION DATE**: **REPORT DATE**:

Performed By:

SEE THE REISSUANCE FACT SHEET

13. **DISCHARGE(S) LOCATION DESCRIPTION**: Provide USGS Topo which indicates the discharge location, significant (large) discharger(s) to the receiving stream, water intakes, and other items of interest.

Name of Topo: Newport News South Quadrant No.: 35B **SEE ATTACHMENT 1**

14. **ATTACH A SCHEMATIC OF THE WASTEWATER TREATMENT SYSTEM(S) [IND. & MUN.]. FOR INDUSTRIAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE PRODUCTION CYCLE(S) AND ACTIVITIES. FOR MUNICIPAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE TREATMENT PROVIDED.**

Narrative: This facility provides secondary treatment and enhanced nutrient removal. Treatment is provided by screening, grit removal, primary clarification, anaerobic/anoxic/aerobic units, secondary clarification, chlorination and dechlorination. Biosolids are treated by anaerobic digestion, gravity belt thickening, and centrifuge dewatering prior to disposal off site. Biosolids can also be land applied as a back-up plan by taking the biosolids to the Atlantic STP for land application. All biosolids requirements are held in the Atlantic STP permit (VA0081248).

The site added a Struvite recovery facility in 2010. The treatment is under the name Ostera and removed additional total phosphorus and ammonia. The solids created from the process are sold under the trade name of Crystal Green.
A supplemental carbon feed facility was also added since the last permit reissuance.
SEE THE REISSUANCE FACT SHEET

15. **DISCHARGE DESCRIPTION**: Describe each discharge originating from this facility.

SEE THE REISSUAANCE FACT SHEET

16. **COMBINED TOTAL FLOW**:

TOTAL: 30.1 MGD (for public notice)

NONPROCESS/RAINFALL DEPENDENT FLOW: .086 MG (Est.)

DESIGN FLOW: 30 MGD (MUN.)

17. **STATUTORY OR REGULATORY BASIS FOR EFFLUENT LIMITATIONS AND SPECIAL CONDITIONS**: (Check all which are appropriate)

- X State Water Control Law
- X Clean Water Act
- X VPDES Permit Regulation (9 VAC 25-31-10 et seq.)
- X EPA NPDES Regulation (Federal Register)
- X EPA Effluent Guidelines (40 CFR 133 or 400 - 471)
- X Water Quality Standards (9 VAC 25-260-5 et seq.)
- ___ Wasteload Allocation from a TMDL or River Basin Plan

18. **EFFLUENT LIMITATIONS/MONITORING**: Provide all limitations and monitoring requirements being placed on each outfall.

SEE TABLE II - ATTACHMENT 2

19. **EFFLUENT LIMITATIONS/MONITORING RATIONALE**: Attach any analyses of an outfall by individual toxic parameter. As a minimum, it will include: statistics summary (number of data values, quantification level, expected value, variance, covariance, 97th percentile, and statistical method); wasteload allocation (acute, chronic and human health); effluent limitations determination; input data listing. Include all calculations used for each outfall and set of effluent limits and those used in any model(s). Include all calculations/documentation of any antidegradation or anti-backsliding issues in the development of any limitations; complete the review statements below. Provide a rationale for limiting internal waste streams and indicator pollutants. Attach chlorine mass balance calculations, if performed. Attach any additional information used to develop the limitations, including any applicable water quality standards calculations (acute, chronic and human health).

OTHER CONSIDERATIONS IN LIMITATIONS DEVELOPMENT:

VARIANCES/ALTERNATE LIMITATIONS: Provide justification or refutation rationale for requested variances or alternatives to required permit conditions/limitations. This includes, but is not limited to: waivers from testing requirements; variances from technology guidelines or water quality standards; WER/translator study consideration; variances from standard permit limits/conditions.

No variances were given during this permit reissuance.

SUITABLE DATA: In what, if any, effluent data were considered in the establishment of effluent limitations and provide all appropriate information/calculations.

All suitable effluent data were reviewed.

ANTIDEGRADATION REVIEW: Provide all appropriate information/calculations for the antidegradation review.

The receiving stream has been classified as tier 1; therefore, no further review is needed. Permit limits have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

ANTIBACKSLIDING REVIEW: Indicate if antibacksliding applies to this permit and, if so, provide all appropriate information.

There are no backsliding issues to address in this permit (i.e., limits as stringent or more stringent when compared to the previous permit).

SEE ATTACHMENT 3

20. **SPECIAL CONDITIONS RATIONALE**: Provide a rationale for each of the permit's special conditions.

SEE ATTACHMENT 4

21. **TOXICS MONITORING/TOXICS REDUCTION AND WET LIMIT SPECIAL CONDITIONS RATIONALE**: Provide the justification for any toxics monitoring program and/or toxics reduction program and WET limit; the actual conditions for the permit are to be included under Attachment 6.

SEE THE REISSUANCE FACT SHEET

22. **SLUDGE DISPOSAL PLAN:** Provide a description of the sludge disposal plan (e.g., type sludge, treatment provided and disposal method). Indicate if any of the plan elements are included within the permit.

Sludge from this facility is dewatered with centrifuges and then burned in HRSD incinerators, primarily at Boat Harbor STP. The primary back-up plan is to haul the sludge for composting to McGill Environmental Systems in Waverly, VA. The secondary back-up plan is to haul the sludge to the HRSD Atlantic Plant for land application.

SEE THE REISSUANCE FACT SHEET

23. **MATERIAL STORED:** List the type and quantity of wastes, fluids, or pollutants being stored at this facility. Briefly describe the storage facilities and list, if any, measures taken to prevent the stored material from reaching State waters.

The materials stored on site include sodium hypochlorite, sodium bisulfate, sodium hydroxide, ferric chloride, polymer, fuel oil, propane, ammonia, glycerol, methanol, struvite, gasoline and diesel fuel. The materials are either stored in buildings with drains connected to the treatment system or are in contained areas. Fuel tanks are double walled.

24. **RECEIVING WATERS INFORMATION:** Refer to the State Water Control Board's Water Quality Standards [e.g., River Basin Section Tables (9 VAC 25-260-5 et seq.). **Use 9 VAC 25-260-140 C (introduction and numbered paragraph) to address tidal waters where fresh water standards would be applied or transitional waters where the most stringent of fresh or salt water standards would be applied.** Attach any memoranda or other information which helped to develop permit conditions (i.e. tier determinations, PReP complaints, special water quality studies, STORET data and other biological and/or chemical data, etc.

SEE THE REISSUANCE FACT SHEET

25 **303(d) Listed Segments:** Indicate if the facility discharges to a segment that is listed on the current 303(d) list and, if so, provide all appropriate information/calculations.

This facility discharges directly to Hampton Roads Harbor. This receiving stream segment has been listed in Category 5 of the 305(b)/303(d) list for non-attainment of Chlorophyll-a, Dissolved Oxygen, PCB in Fish Tissue. A TMDL has not been prepared or approved for this stream segment. The permit contains a TMDL reopener clause which will allow it to be modified, in compliance with section 303(d)(4) of the Act once a TMDL is approved.

26. **CHANGES TO PERMIT:** Use **TABLE III(a)** to record any changes from the previous permit and the rationale for those changes. Use **TABLE III(b)** to record any changes made to the permit during the permit processing period and the rationale for those changes [i.e., use for comments from the applicant, VDH, EPA, other agencies and/or the public where comments resulted in changes to the permit limitations or any other changes associated with the special conditions or reporting requirements].

SEE THE REISSUANCE FACT SHEET

27. **NPDES INDUSTRIAL PERMIT RATING WORKSHEET:**

TOTAL SCORE:
N/A - This is a municipal facility.

28. **DEQ PLANNING COMMENTS RECEIVED ON DRAFT PERMIT:** Document any comments received from DEQ planning.

The discharge is not addressed in any planning document but will be included when the plan is updated.

29. **PUBLIC PARTICIPATION:** Document comments/responses received during the public participation process. If comments/responses provided, especially if they result in changes to the permit, place in the attachment.

VDH/DSS COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the Virginia Dept. of Health and noted how resolved.

The VDH provided comments on 4/11/14 on the study proposal and final limit of 0.5 mg/l for the residual chlorine. Concurrence was given by VDH. See attached memo from VDH.

EPA COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the U.S. Environmental Protection Agency and noted how resolved.

EPA has no objections to the adequacy of the draft permit. Email received 6/2/14.

ADJACENT STATE COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from an adjacent state and noted how resolved.

Not Applicable.

OTHER AGENCY COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from any other agencies (e.g., VIMS, VMRC, DGIF, etc.) and noted how resolved.

Not Applicable.

OTHER COMMENTS RECEIVED FROM RIPARIAN OWNERS/CITIZENS ON DRAFT PERMIT: Document any comments received from other sources and note how resolved.

The application and draft permit have received public notice in accordance with the VPDES Permit Regulation, and no comments were received.

PUBLIC NOTICE INFORMATION: Comment Period: Start Date 5/18/14
End Date 6/17/14

Persons may comment in writing or by e-mail to the DEQ on the proposed reissuance of the permit within 30 days from the date of the first notice. Address all comments to the contact person listed below. Written or e-mail comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The Director of the DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requestor's interests would be directly and adversely affected by the proposed permit action.

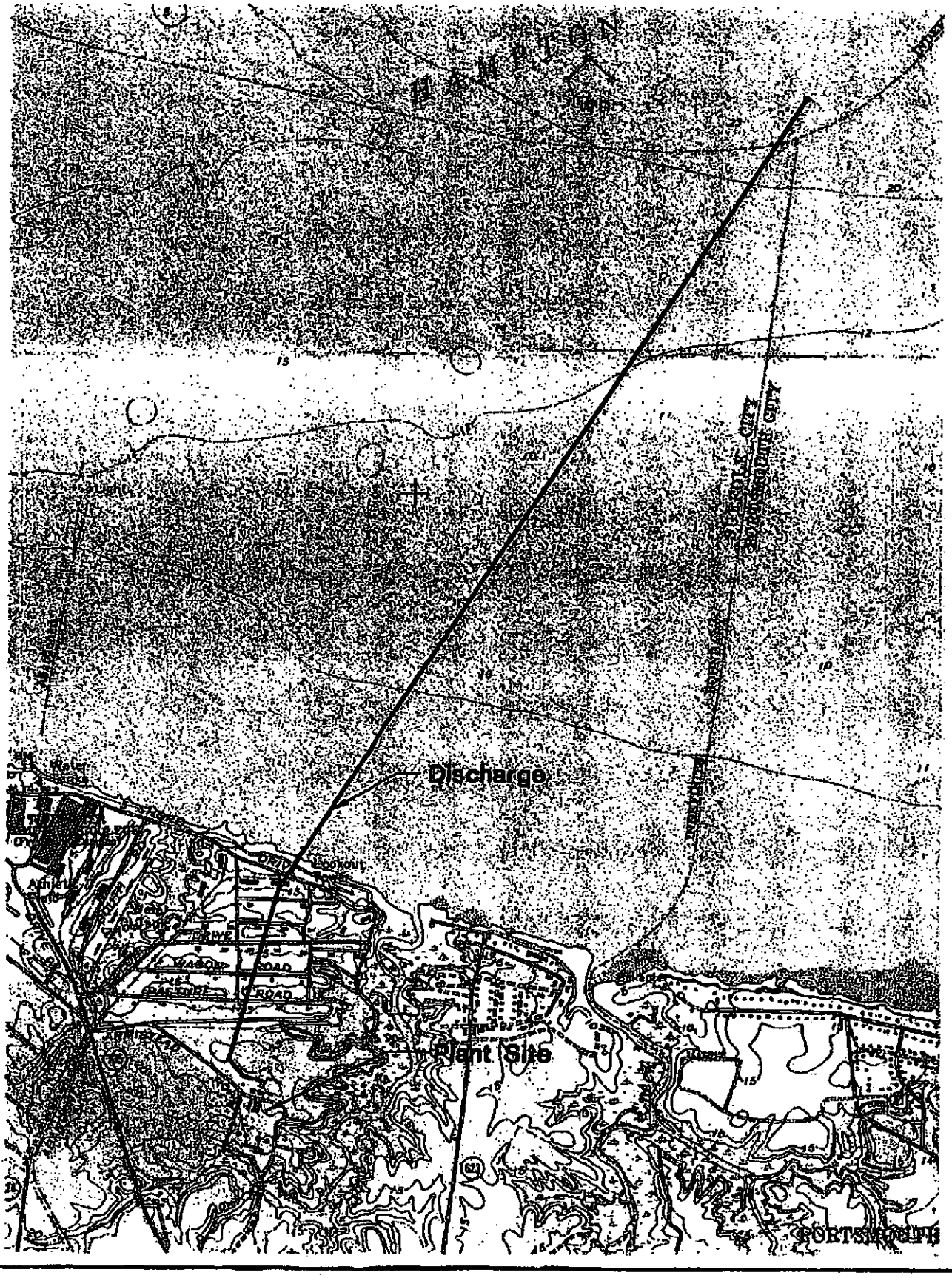
All pertinent information is on file and may be inspected, and arrangements made for copying by contacting Deanna Austin at: Department of Environmental Quality (DEQ), Tidewater Regional Office, 5636 Southern Boulevard, Virginia Beach, VA 23462. Telephone: 757-518-2008 E-mail:deanna.austin@deq.virginia.gov

Following the comment period, the Board will make a determination regarding the proposed reissuance. This determination will become effective, unless the Director grants a public hearing. Due notice of any public hearing will be given.

30. **ADDITIONAL FACT SHEET COMMENTS/PERTINENT INFORMATION:**

ATTACHMENT 1

DISCHARGE LOCATION/TOPOGRAPHIC MAP



Location Map
for
Nansemond TP

June 2003 | Scale: 1"-2000' | USGS Map Reference

ATTACHMENT 2

TABLE II - EFFLUENT MONITORING/LIMITATIONS

TABLE II - MUNICIPAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL # 001 DESIGN FLOW: 30 MGD

Outfall Description: Municipal Discharge

SIC CODE: 4952

(X) Final Limits ( ) Interim Limits Effective Dates - From: Reissuance To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	DESIGN FLOW MULTIPLIER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD) [a]	3		NL	NA	NA	NL	Cont.	TI & RE*
PH (S.U.)	1		NA	NA	6.0	9.0	1/Day	Grab
BOD5 (mg/l) [c][d]	1		30	45	NA	NA	3/Week	24 HC
BOD5 (kg/d)[d]	1	30	3406	5110	NA	NA	3/Week	24 HC
TSS (mg/l) [c][d]	1		30	45	NA	NA	3/Week	24 HC
TSS (kg/d)[d]	1	30	3406	5110	NA	NA	3/Week	24 HC
TRC (mg/l) [b][c]	2		0.20	2.4	NA	NA	1/Day	Grab
Total Phosphorus (mg/l)	3		NL	NA	NA	NA	1/Month	24 HC
Total Phosphorus (mg/l) Year to date [f]	3		NL	NA	NA	NA	1/Month	Calc
Total Phosphorus (mg/l) Calendar Year [e][f]	3		2.0	NA	NA	NA	1/Year	Calc
Total Nitrogen (mg/l)	3		NL	NA	NA	NA	1/Month	24 HC
Total Nitrogen (mg/l) Year to date [f]	3		NL	NA	NA	NA	1/Month	Calc
Total Nitrogen(mg/l) Calendar Year [e][f]	3		8.0	NA	NA	NA	1/Year	Calc

PARAMETER & UNITS	BASIS FOR LIMITS	DESIGN FLOW MULTIPLIER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Fecal Coliform (n/cml)[d] [g]	2		200	NA	NA	NA	1/Week (Between 10 am & 4 pm)	Grab
Enterococci (n/cml) [h]	2		35	NA	NA	NA	2/Month (Between 10 am & 4 pm)	Grab

*Totalizing, Indicating & Recording Equipment

NA = Not Applicable. NL = No limitation, however, reporting is required.
1 Year= January 1-December 31; reported for each full calendar year

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

In addition to any Total Nitrogen or Total Phosphorus concentration limits listed above, this facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN040090, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

[a] The design flow of this treatment facility is 30 MGD. See Part I.C.5 for additional flow requirements.
[b] See Part I.B. and I.C.13 for additional chlorine monitoring instructions.
[c] See Parts I.C.6 and I.C.7 for quantification levels and reporting requirements, respectively.
[d] See Part I.C.8 for additional instructions regarding effluent monitoring frequencies.
[e] Annual average limitation, based on a calculation of all samples collected during the calendar year.
[f] See Part I.C.10.for additional instructions regarding Total Phosphorus and Total Nitrogen.
[g] Fecal Coliform monthly average is calculated as a geometric mean.
[h] Enterococci monthly average is calculated as a geometric mean. Samples must be taken at least 7 days apart.

2. There shall be no discharge of floating solids or visible foam in other than trace amounts.
3. At least 85% removal for BOD and TSS must be attained for this effluent.

The basis for the limitations codes are:
1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - MUNICIPAL MINOR EFFLUENT LIMITATIONS
Attachment 5 continued

Final Chlorine Limitations Effective Dates - From: Permit Issuance To: Permit Expiration

TRC **	AFTER CL2 CONTACT TANK (Dechlor. Required)			AFTER DECHLORINATION		AFTER CL2 CONTACT TANK (Dechlor. Not Required)				
	MIN.	EXC.	INST. MIN.	WKLY AVG.	INST. MAX.	PERMIT RANGE	EXC.	REPORT-ING RANGE	EXC.	TECH. MAX.
a) Non-Detect. Dechlor. Required	---	---	---	---	---	NA	NA	NA	NA	NA
b) Detect. Dechlor. Required	**1.5*** **	**36**	**0.6 mg/l***	**2.4 mg/l**	---	NA	NA	NA	NA	NA
c) No Dechlor.	NA	NA	NA	NA	NA	---	---	---	---	---

* Reporting is required when 3 or more consecutive readings are <0.6 mg/l or when the TRC is <0.1 mg/l.

** --Chlorine mass balance Cw (W for Tidal systems): check one
____a) $C_w < 0.1$ mg/l [dechlor. required, non-detectable format]
__X__b) 0.1 mg/l $\leq C_w <$ 2.0 mg/l (2.5 mg/l for PWS, Shellfish waters) [dechlor. required, detectable format]
___ c) $C_w >$ 2.0 mg/l (2.5 mg/l for PWS, Shellfish waters) [dechlor. not required, include a restrictive technology max. value]

*** See Part I.C.13 for additional information on the chlorine residual reduction testing allowance.
The design flow of this treatment facility is 30 MGD.

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

See Part I.B. for additional TRC limitations.

ATTACHMENT 3

EFFLUENT LIMITATIONS/MONITORING RATIONALE/SUITABLE DATA/ ANTIDEGRADATION/ANTIBACKSLIDING

HRSD NANSEMOND STP
Monitoring Requirement Rationale
Outfall 001

Total Residual Contact Chlorine:

The DEQ instituted a Chlorine Reduction Testing Program due to concerns over the potentially toxics effects of chlorine in discharges. The purpose of the program is to allow dischargers to voluntarily demonstrate they can maintain adequate levels of disinfection with lowered chlorine residuals. The testing requires VDH concurrence. HRSD proposed a sampling plan for the Nansemond treatment plant via letter on March 4, 2014. This letter was forwarded to VDH and concurrence was received from them on April 11, 2014. A formal modification request from HRSD was then submitted to DEQ on April 17, 2014 that asks for permit language for the study to be performed and the total residual contact chlorine limit to be altered based on the study results. The current limit of 1.5 mg/l residual chlorine will be lowered by 0.25 mg/l increments to a final residual of 0.5 mg/l. The 0.5 mg/l will be used for permit compliance for the remainder of the permit term. The special condition states that if bacteria limits are not maintained, the facility will revert to the 1.5 mg/l limit.

At each 0.25 mg/l study increment, bacteria will be monitored daily and chlorine will be monitored 1/2 hours during the study. Each study period will last for approximately 1 month, to include 30 consecutive data points.

The limit will still have 36 exceptions and there is still a special condition that requires reporting when 3 or more consecutive TRC readings are below 0.5 mg/l or the TRC is less than 0.1 mg/l. This condition was changed from 0.6 mg/l to 0.5 mg/l to reflect the lowest residual at which the plant will be able to operate.

Fecal Coliform:

Monthly average of 200 n/cml. This is based on Water Quality Standards (9 VAC 25-260-160) and is believed protective of instream standards. Monitoring required is a grab sample once a week. During each monthly study period the frequency of monitoring will be 1/day. Once the study is complete, the frequency of monitoring will return to 1/week.

Enterococci:

A monthly average limit of 35 n/cml is included per water quality standards. Sampling is required 2/Month to be calculated as a geometric mean. Samples must be taken at least 7 days apart. During each monthly study period, the frequency of monitoring will be 1/day. Once the study is complete, the frequency of monitoring will return to 2/month.

HRSD
Cleaning wastewater every day for a better Bay.

March 4, 2014

Delivered via email: Deanna.Austin@deq.virginia.gov

Deanna Austin
Department of Environmental Quality
5636 Southern Blvd
Virginia Beach, VA 23462

RE: Nansemond STP VA0081299
Chlorine Reduction Study

Dear Mrs. Austin:

The Hampton Roads Sanitation District (HRSD) Nansemond STP (VA0081299) VPDES permit currently requires that the plant maintain a minimum chlorine contact tank residual of 1.5 mg/l. In an effort to reduce the amount of chemicals utilized and discharged to the environment, HRSD requests that a chlorine reduction study be conducted at the facility. Currently, four of the HRSD major POTWs operate at a chlorine contact tank residual of 0.50 mg/l and a fifth facility, the Virginia Initiative STP, complies with bacteria limits using a minimum chlorine contact tank residual of 0.30 mg/l. Due to the quality of the Nansemond STP effluent and based on experience at our other facilities, HRSD is confident that the Nansemond STP can reliably maintain compliance with the fecal coliform and enterococcus limits at a much lower chlorination level. DEQ Guidance Memorandum 03-2007, *Implementation of Bacteria Standards in VPDES Permits*, requires a minimum of twelve data points in order to demonstrate chlorine as an appropriate surrogate parameter for compliance with bacteria standards. HRSD offers a more conservative study plan using a minimum of one month's data, 30 data points, for each modification of the chlorine residual.

The Nansemond STP would operate at a chlorine contact tank residual of 1.0 mg/l and continue to monitor the chlorine contact tank at the current frequency of once every two hours. The sampling frequency for fecal coliform and enterococcus would increase from once per week to once per day. After a minimum of 30 data points have been collected, HRSD would submit the bacteria and chlorine data to DEQ-TRO. If the enterococcus and fecal coliform VPDES permit limits were met, then HRSD would reduce the chlorine contact tank residual target to 0.75 mg/l. The disinfection performance of the plant would be evaluated again after 30 samples of fecal coliform and enterococcus are analyzed. If the results indicate compliance with the VPDES permit, then HRSD will enter the final phase of the study which is to operate at 0.50 mg/l. The plant would continue daily bacteria monitoring for 30 days. If the results of the monitoring show continued compliance with VPDES limits, then HRSD would maintain operating at the 0.50 mg/l residual and resume normal bacteria monitoring.

HRSD is aware that the VPDES permit limits will continue to be in effect throughout the study and will terminate the study if the analytical results indicate non-compliance with the bacteria limits.

Please contact me if you have any questions.

Sincerely,

Jamie S. Heisig-Mitchell
Chief of Technical Services Division

Austin, Deanna (DEQ)

From: Austin, Deanna (DEQ)
Sent: Tuesday, March 11, 2014 11:48 AM
To: Horne, Daniel (VDH); Skiles, Keith (VDH)
Subject: FW: HRSD-Nansemond chlorine reduction
Attachments: HRSD chlorine reduction study.pdf

Tracking:	**Recipient**	**Delivery**
	Horne, Daniel (VDH)	Delivered: 3/11/2014 11:49 AM
	Skiles, Keith (VDH)	Delivered: 3/11/2014 11:49 AM

Dan and Keith-HRSD is proposing to do a chlorine reduction study for the Nansemond STP VA0081299. Attached is the proposed plan. Please let me know if you have any questions or comments.

Deanna Austin
DEQ-TRO Water Permits
5636 Southern Blvd
Virginia Beach, VA 23462
Phone: 757-518-2008
Fax: 757-518-2009

From: Nicklas, Sharon [mailto:SNICKLAS@HRSD.COM]
Sent: Tuesday, March 04, 2014 1:02 PM
To: Austin, Deanna (DEQ)
Subject: HRSD-Nansemond chlorine reduction

Hi Deanna,

Attached is the study plan for chlorine reduction at Nansemond STP.

Thanks,

Sharon Nicklas
HRSD Permits Manager
Office: 757.460.4245 | Mobile 757.419.8577
1434 Air Rail Avenue | Virginia Beach, VA 23455
PO Box 5911 | Virginia Beach, VA 23471-0911
snicklas@hrsd.com

COMMONWEALTH of VIRGINIA

Marissa J. Levine, MD, MPH, FAAFP
State Health Commissioner

John J. Aulbach II, PE
Director, Office of Drinking Water

DEPARTMENT OF HEALTH
OFFICE OF DRINKING WATER
Southeast Virginia Field Office

898 Southampton Avenue
Suite 2058
Norfolk, VA 23510
Phone (757) 683-2000
Fax (757) 683-2007

MEMORANDUM

TO: Ms. Deanna Austin
Environmental Engineer Senior
Department of Environmental Quality –Tidewater Regional Office

DATE: APR 09 2014

FROM: Daniel B. Horne, PE
Engineering Field Director DBH

CITY/COUNTY: City of Suffolk
PROJECT TYPE: ☐ New ☐ Renewal or Revision

☑ VPDES ☐ VPA ☐ VWPP ☐ JPA ☑ Other: Study

☑ Number: VA0081299
OWNER/APPLICANT: Hampton Roads Sanitation District (HRSD)
PROJECT: Nansemond STP

☑ There are no public water supply raw water intakes located within 15 miles downstream or within one tidal cycle upstream of the existing project.

☐ The raw water intake for the _____ waterworks is located _____ miles [downstream/upstream] of the discharge. This should be a sufficient distance to minimize the impacts of the discharge. We recommend a minimum Reliability Class of ____ for this facility.

☐ The raw water intake for the _____ waterworks is located _____ miles [downstream/upstream (within one tidal cycle)] of the discharge.

☐ Please forward a copy of the Draft Permit for our review and comment.

☑ Comments: HRSD proposes to conduct a disinfection study at the Nansemond STW, which would demonstrate that the STW can operate at a lower chlorine residual level and remain in compliance with fecal coliform and enterococcus limits. The study will follow DEQ Guidance Memorandum 03-2007, Implementation of Bacteria Standards in VPDES Permits and will incorporate the monitoring of 30 data points for fecal coliform and enterococcus limits. The residual will be lowered stepwise to 0.5 mg/L. Bacteria samples will be analyzed daily for 30 days at each residual. Once it can be demonstrated that fecal coliform levels and enterococcus limits are maintained with a 0.5 mg/L residual, the plant will operate at that level with continual monitoring.

This proposal is line with studies previously performed at other HRSD STWs.

Prepared by: Renee S. Hall
Renee S. Hall
District Engineer

pc: V.D.H. - Office of Drinking Water, Field Services Engineer
\\Odwsevfo\district\DIST20B\SUFFOLK\GENERAL\HRSD Nansemond [illegible]

Austin, Deanna (DEQ)

From: Nicklas, Sharon [SNICKLAS@HRSD.COM]
Sent: Thursday, April 17, 2014 8:38 AM
To: Austin, Deanna (DEQ)
Subject: HRSD-Nansemond
Attachments: Request for permit modification.pdf

Hi Deanna,

I have attached our request for a permit modification for Nansemond STP VPDES permit. The permit fee application and payment are going out in today's mail to Receipts Control. Please let me know if you need anything else.

Thanks,

Sharon Nicklas
HRSD Permits Manager
Office: 757.460.4245 | Mobile 757.419.8577
1434 Air Rail Avenue | Virginia Beach, VA 23455
PO Box 5911 | Virginia Beach, VA 23471-0911
snicklas@hrsd.com

HRSD
Cleaning wastewater every day for a better Bay.

April 17, 2014

Delivered via email: Deanna.Austin@deq.virginia.gov

Deanna Austin
Department of Environmental Quality
5636 Southern Boulevard
Virginia Beach, VA 23462

RE: Nansemond STP VA0081299
Permit Modification to include Chlorine Reduction Study language

Dear Mrs. Austin:

Per March 4, 2014 letter to DEQ-TRO, the Hampton Roads Sanitation District (HRSD) proposed a plan for a chlorine reduction study at the Nansemond STP (VA0081299). The study would evaluate the plant disinfection performance at a reduced chlorine contact tank residual level. The VPDES permit currently requires that the plant maintain a minimum chlorine contact tank residual of 1.5 mg/l. HRSD requests that the Nansemond STP VPDES permit be modified to allow the execution of the chlorine reduction study with the implementation of a new chlorine contact tank minimum requirement based on the results of the study. HRSD suggests the following permit language for DEQ's consideration:

a) Chlorine contact residual minimum is lowered from 1.5 mg/l to 1.0 mg/l. Fecal coliform and enterococcus monitoring shall increase to once per day. After a minimum of 30 data values are collected for each bacteria parameter, HRSD shall submit the bacteria and chlorine data to DEQ-TRO. If the data indicates compliance with the VPDES permit limits, then the chlorine contact tank residual target is lowered to 0.75 mg/l and daily bacteria monitoring is continued. If the plant is not in compliance with the VPDES limits, then the study is terminated and the chlorine contact tank limit of 1.5 mg/l will remain unchanged.

b) The chlorine contact tank residual shall be lowered to 0.75 mg/l. After a minimum of 30 data values are collected for each bacteria parameter, HRSD shall submit the bacteria and chlorine data to DEQ-TRO. If the data indicates compliance with the VPDES permit limits, then the chlorine contact tank residual target is lowered to 0.50 mg/l. If the plant is not in compliance with the VPDES limits, then the study is terminated and the chlorine contact tank limit of 1.0 mg/l becomes effective.

c) The chlorine contact tank residual shall be lowered to 0.50 mg/l. After a minimum of 30 data values are collected for each bacteria parameter, HRSD shall submit the bacteria and chlorine data to DEQ-TRO. If the data indicates compliance with the VPDES permit limits, then the 0.50 mg/l chlorine contact residual limit will become effective. If the plant is not in compliance with the VPDES limits, then the chlorine contact tank limit of 0.75 mg/l becomes effective.

d) At the conclusion of the study, the fecal coliform sampling frequency will return to once per week and the enterococcus monitoring shall be twice per month.

HRSD has submitted the DEQ-Water Division Permit Fee Form and fee payment to Receipts Control of DEQ. A copy of the completed application and check payment is included for your reference.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See USC §1001 and 33 USC §1319. Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.

Please contact Sharon Nicklas at 757-460-4245 or snicklas@hrsd.com if you have any questions.

Sincerely,

Edward G. Henifin, P.E.
General Manager

Enclosures

ATTACHMENT 4

SPECIAL CONDITIONS RATIONALE

VPDES PERMIT PROGRAM
LIST OF SPECIAL CONDITIONS RATIONALE

Name of Condition:

B. Additional Total Residual Chlorine (TRC) Limitations and Monitoring Requirements

Rationale: Required by Water Quality Standards, 9VAC 25-260-170, Fecal coliform bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

C. OTHER REQUIREMENTS OR SPECIAL CONDITIONS

13. Chlorine Reduction Testing Study

Rationale: The Chlorine reduction testing study program was instituted by DEQ due to concerns with potentially toxic effects of chlorine in wastewater discharges. The purpose of this program is to allow discharges to voluntarily demonstrate they can maintain adequate levels of disinfection with lowered chlorine residuals. Participation in this program also benefits the permittee by helping reduce the waste treatment costs.

ATTACHMENT 5

TABLE III(a) AND TABLE III(b) - CHANGE SHEETS

TABLE III(a)
VPDES PERMIT PROGRAM
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes FROM PREVIOUS PERMIT and give a brief rationale for the changes).

OUTFALL NUMBER	PARAMETER CHANGED	MONITORING LIMITS CHANGED FROM / TO	EFFLUENT LIMITS CHANGED FROM / TO	RATIONALE	DATE & INITIAL

TABLE III(a)

VPDES PERMIT PROGRAM
Permit Processing Change Sheet

OTHER CHANGES:	Comments:	DATE & INITIAL
Added a special condition in response to a monification request for a chlorine reduction testing study	Per the modification request, a new condition was added to allow the facility to reduce the chlorine residual from 1.5 mg/l to 0.5 mg/l in 0.25 mg/l increments during monthly study periods.	5/5/14 DDA
Updated the additional chlorine limits and monitoring section.	Added language to this section to reflect the study requirements.	5/5/14 DDA

TABLE III(b)

VPDES PERMIT PROGRAM
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes MADE DURING PERMIT PROCESS and give a brief rationale for the changes).

OUTFALL NUMBER	PARAMETER CHANGED	MONITORING LIMITS CHANGED FROM / TO	EFFLUENT LIMITS CHANGED FROM / TO	RATIONALE	DATE & INITIAL

OTHER CHANGES FROM:	CHANGED TO:	DATE & INITIAL

ATTACHMENT 6

CHRONOLOGY SHEET

Chronology

Monday, May 05, 2014

Facility Name: HRSD - Nansemond Sewage Treatment Plant *VA0081299*

Event	*Date*	*Comment*
App complete letter sent to permittee:	—	N/A-Mod request
local gov't notified of receipt of app. (Iss/Mod):	—	N/A-No changes in facility only a special condition change
Riparian owner request sent to tax commissioner:	—	N/A-No chages in facility only a special condition change.
Site inspection report:	—	N/A
Site visit:	—	N/A
Permit effective:	— 11/30/2012	
App sent to State Agencies (list in comment field):	— 3/11/2014	Study proposal sent to VDH and DSS
Comments rec'vd from State Agencies on App:	— 4/11/2014	Concurrance received from VDH
Application Administratively complete:	— 4/17/2014	
Application received at RO 1st time:	— 4/17/2014	Modification Request Received
Application totally / technically complete:	— 4/17/2014	
Application fee deposited:	— 4/24/2014	DC # 54401044
Draft permit developed:	— 5/5/2014	
Permit expires:	— 11/29/2017	